

# WHAT WE CLAIM IS

1. A linear motor comprising: a rod-like member having a cylindrical body made of a non-magnetic material and a plurality of plate-like segment magnets accommodated in the cylindrical body such that they are stacked in the axial direction of the cylindrical body; and a coil member having a polyphase coil, wherein said rod-like member is arranged to extend through a center bore of said coil member, and said rod-like member and said coil member are moved relative to each other by applying a current to the polyphase coil of said coil member, said linear motor being characterized in that

said rod-like member comprises the cylindrical body having a substantially oval or substantially rectangular section and the plurality of segment magnets having a substantially oval or substantially rectangular plate shape which are accommodated in the cylindrical body and stacked in the axial direction of the cylindrical body, and that the section of the center bore of said coil member is substantially oval or substantially rectangular corresponding to the shape of the section of said rod-like member.

2. A linear motor as claimed in claim 1, being characterized in that said rod-like member and said coil member are arranged such that the major axis of the oval section or the long side of the rectangular section of said rod-like member and the major axis of the oval section or the long side of the

rectangular section of said coil member both extend vertically.

3. A linear motor as claimed in claim 1, being characterized in that said coil member is surrounded around  
5 its outer periphery by a casing having a circular outer periphery in section and is supported by a coil member supporting portion and that a rod-like member supporting portion supporting said rod-like member and the coil member supporting portion can be rotated according to the mounting  
10 condition of said linear motor so that said rod-like member and said coil member are arranged such that the major axis of the oval section or the long side of the rectangular section of said rod-like member and the major axis of the oval section or the long side of the rectangular section of said coil member  
15 both extend in a same direction.

4. A linear guiding apparatus comprising: a linear guiding rail; a movable block which can move along said linear guiding rail; and a driving means providing driving force to said movable block, said linear guiding apparatus being  
20 characterized in that

said driving means is a linear motor as claimed in claim 1, 2, or 3, the rod-like member of said linear motor is arranged such that its axial direction is parallel to said linear guiding rail, and said coil member and said movable  
25 block are united or connected to each other.